APPENDIX I

GLOSSARY

AMPERE-TURN—The magnetomotive force developed by one ampere of current flowing through a coil of one turn.

AMPLIFICATION—The process of enlarging a signal in amplitude (as of voltage or current).

AMPLIFIER—A device that enables an input signal to control an output signal. The output signal will have some (or all) of the characteristics of the input signal but will generally be larger than the input signal in terms of voltage, current, or power.

AMPLITUDE—The size of a signal. Generally used to describe voltage, current, or power.

AUDIO AMPLIFIER—An amplifier designed to amplify frequencies between 15 hertz (15 Hz) and 20 kilohertz (20 kHz).

BANDWIDTH—The difference between the highest usable frequency of a device (upper frequency limit) and the lowest usable frequency of the device (lower frequency limit)—measured at the half-power points.

BYPASS CAPACITOR—A capacitor used to transfer unwanted signals out of a circuit; e.g., coupling an unwanted signal to ground. Also called a DECOUPLING CAPACITOR.

COMBINATION PEAKING—A technique in which a combination of peaking coils in series and parallel (shunt) with the output signal path is used to improve high-frequency response.

COMPENSATION—The process of overcoming the problems associated with frequencies in an amplifier.

COUPLING—The process of transferring energy from one point in a circuit to another point or from one circuit to another.

COUPLING CAPACITOR—A capacitor used to couple signals.

DECOUPLING CAPACITOR—A capacitor used to transfer unwanted signals out of a circuit; e.g., coupling an unwanted signal to ground. Also called a BYPASS CAPACITOR.

DEGENERATIVE FEEDBACK—Feedback in which the feedback signal is out of phase with the input signal, also called NEGATIVE FEEDBACK.

DIFFERENTIAL AMPLIFIER—An amplifier with an output which is determined by the difference between two input signals and which can provide up to two output signals.

DISTORTION—Any unwanted change between an input signal and an output signal.

DRIVER—An electronic circuit that supplies the input to another circuit.

FEEDBACK—The process of sending part of an output signal of an amplifier back to the input of the amplifier.

FIDELITY—The quality of reproducing an output signal exactly like the input signal except for amplitude (and somtimes phase); i.e., output and input signals exactly alike in terms of frequency and shape.

FREQUENCY-DETERMINING NETWORK—A circuit that provides the desired response (maximum or minimum impedance) at a specific frequency.

FREQUENCY-RESPONSE CURVE—A curve showing the output of an amplifier (or any other device) in terms of voltage or current plotted against frequency with a fixed-amplitude input signal.

GAIN-BANDWIDTH PRODUCT—The number that results when the gain of a circuit is multiplied by the bandwidth of that circuit. For an operational amplifier, the gain-bandwidth product for one configuration will always equal the gain-bandwidth product for any other configuration of the same amplifier.

HALF-POWER POINTS—The points on a frequency-response curve at which the output power is one-half of the maximum power out.

HIGH-FREQUENCY COMPENSATION—See peaking coil.

KNEE OF THE CURVE—The point of maximum curvature. (Shaped like the knee of a leg that is bent.)

MAGNETIC AMPLIFIER (MAG AMP)—An amplifier that uses electromagnetic effects to provide amplification of a signal. The magnetic amplifier uses a changing inductance to control the power delivered to a load.

NEGATIVE FEEDBACK—Feedback in which the feedback signal is out of phase with the input signal. Also called DEGENERATIVE FEEDBACK.

NEUTRALIZATION—The process of counteracting or "neutralizing" the effects of interelectrode capacitance.

OPERATIONAL AMPLIFIER (OP AMP)—An amplifier designed to perform computing or transfer operations and which has the following characteristics: (1) very high gain, (2) very high input impedance, and (3) very low out put impedance.

PEAKING COIL—An inductor used in an amplifier to provide high-frequency compensation which extends the high-frequency response of the amplifier.

PERMEABILITY—The measure of the ability of a material to act as a path for additional magnetic lines of force.

PHASE SPLITTER—A device that provides two output signals from a single input signal. The two output signals will differ from each other in phase.

POSITIVE FEEDBACK—Feedback in which the feedback signal is in phase with the input signal. Also called REGENERATIVE FEEDBACK.

POWER AMPLIFIER—An amplifier in which the output-signal power is greater than the input-signal power.

PUSH-PULL AMPLIFIER—An amplifler which uses two transistors (or electron tubes) whose output signals are combined to provide a larger gain (usually a power gain) than a single transistor (or electron tube) can provide.

REGENERATIVE FEEDBACK—Feedback in which the feedback signal is in phase with the input signal. Also called POSITIVE FEEDBACK

RF (RADIO FREQUENCY) AMPLIFIER—An amplifier designed to amplify signals with frequencies between 10 kilohertz (10 kHz) and 100,000 megahertz (100,000 MHz).

RF (RADIO FREQUENCY) TRANSFORMER—A transformer specially designed for use with rf (radio frequencies). An rf transformer is wound onto a tube of non- magnetic material and has a core of either powdered iron or air.

SATURATION (MAGNETIC CORE)—The condition in which a magnetic material has reached a maximum flux density and the permeability has decreased to a value of (approximately) 1.

SATURABLE-CORE REACTOR—A coil whose reactance is controlled by changing the permeability of the core.

SERIES PEAKING—A technique used to improve high-frequency response in which a peaking coil is placed in series with the output signal path.

SHUNT PEAKING—A technique used to improve high-frequency response in which a peaking coil is placed in parallel (shunt) with the output signal path.

SIGNAL—A general term used to describe any a.c. or d.c. of interest in a circuit; e.g., input signal.

STAGE—One of a series of circuits within a single device; e.g., first stage of amplification.

SWAMPING RESISTOR—A resistor used to increase or "broaden" the bandwidth of a circuit.

TUNED CIRCUIT—An LC circuit used as frequency-determining network.

VIDEO AMPLIFIER—An amplifier designed to amplify the entire band of frequencies from 10 hertz (10 Hz) to six megahertz (6 MHz). Also called a WIDE-BAND AMPLIFIER.

VIRTUAL GROUND—A point in a circuit which is at ground potential (0 V) but is not connected to ground.

VOLTAGE AMPLIFIER—An amplifier in which the output-signal voltage is greater than the input-signal voltage.

WIDE-BAND AMPLIFIER—An amplifier designed to pass an extremely wide band of frequencies, i.e., video amplifier.

MODULE 8 INDEX

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